Building the Midstream Company of the Future

The reemergence of North America's midstream sector

kpmg.com
25.7 Trillion cubic feet of natural gas provided by U.S. domestic production last year.
Building the Midstream Company of the Future

The reemergence of North America’s midstream sector.

CONTENTS

2 North America’s Midstream Sector Emerges
Increased U.S. supply has shifted global commodity flows

4 Current midstream infrastructure constrains growth possibilities
U.S. midstream sector was low-growth before current boom
The midstream sector responded with increased investment

6 Defining the midstream business model of the future

8 Aligning the operating model
Realizing operating efficiencies

12 Conclusion
Global Gas Flows

Expectations based on EIA 2015 Scenario in 2005
NORTH AMERICA’S MIDSTREAM SECTOR REEMERGES

The development of North America’s unconventional oil and gas resources has brought new life to the region’s midstream sector. The infrastructure necessary to gather and transport commodities to resurgent downstream and chemicals sectors, new gas fired power generation, and other new demand requires investment approaching a trillion dollars by some estimates.

And investment opportunities translate to growth. However, the midstream sector’s history prior to this revolution in unconventional energy resources left it under-prepared and ill-suited for the current boom. As a result, the race is on to create the midstream company of the future; a company with the business model and supporting organizational model and capabilities to capitalize on the opportunities. Though the recent oil price and earlier gas price decline slows the build out, it also puts additional impetus on further industry consolidation. Creating the midstream company of the future will not be easy, but there is the possibility of significant profits.

INCREASED U.S. SUPPLY HAS SHIFTED GLOBAL COMMODITY FLOWS

In 2005, the U.S. Energy Information Agency estimated in a report that the country would need to import 6.4 trillion cubic feet of natural gas by 2014. That estimate proved inaccurate. Last year U.S. producers provided 25.7 trillion cubic feet in domestic production, enough production that they not only met domestic needs but also positioned the country to become a significant exporter. The horizontal drilling and hydraulic fracturing technologies that allowed the economic development of the Barnett, Marcellus, and other natural gas shale basins had fundamentally shifted global natural gas flows.

A similar series of events transpired in the development of North America’s “tight oil” resources of light crude. The development of the Bakken, Eagle Ford, and several areas of the Permian Basin increased domestic oil production by 2 million barrels per day from 2013 to 2015. And despite the subsequent decline in crude prices, production of light tight oil is still expected to increase, albeit at a slower rate.

This unforeseen increase in domestic oil and gas supply presented an economic “gift” for North America’s chemicals, downstream, and other sectors that consume energy and use feedstocks. The large supply and competitive costs of natural gas shifted North America’s position in the global chemicals supply for products such as ethylene and its derivatives. Increased domestic oil production widened price differentials against competing global crude markets, allowing U.S. refiners to boost profits and capture a larger share of global export markets. Downstream companies have moved to capture and capitalize on this boon through a series of significant investments to reduce bottlenecks, kit enhancements, and even to build new projects.

Actual 2013 Global Gas Flows

- 2013 actuals consistent to the 2015 predictions.
- 2013 actuals different from 2015 predictions.

Had EIA’s predictions materialized, U.S. alone would have accounted for 40% of total 2013 global LNG trade.
CURRENT MIDSTREAM INFRASTRUCTURE CONSTRAINS GROWTH POSSIBILITIES

The combination of an increased domestic supply of oil and gas inputs and increased downstream processing capacity offers the prospects of a renaissance in U.S. manufacturing subject to one key constraint: the midstream infrastructure necessary to gather the inputs, process them, transport them to the downstream hubs, and then move the finished products to markets. In response, a midstream infrastructure building boom has begun in the United States.

A recent study by IHS for the American Petroleum Institute estimates that the industry will need to invest $838 billion by 2025 in order to match projected supply and demand.\(^1\) Similar reports cite slightly higher or lower figures depending upon the infrastructure types included in the report, the timeframe of the study, and other underlying factors. To put this in perspective, the estimated $838 billion in midstream infrastructure capital investment exceeds similar estimates for capital investment in all transport infrastructure (e.g., roads, bridges, tunnels, etc.) during the same period.

U.S. MIDSTREAM SECTOR WAS LOW-GROWTH BEFORE CURRENT BOOM

It is important to remember that prior to the mid-2000s, onshore oil and gas activity in the United States had declined for almost 20 years. As a result, the midstream sector had been considered a mature, low-growth portion of the value chain. Many large integrated companies had not only limited their investments in midstream but also divested or spun-out midstream assets in order to harvest what value and cash flow they could from such mature assets.

The introduction of master limited partnership (MLP) structures through the Tax Reform Act of 1986 and the Revenue Act of 1987 accelerated the disaggregation of the midstream sector. These pass-through entities, which may only hold qualified income sources including midstream oil and gas assets, offered a lower cost of capital by which to hold mature assets. As of 2014, there were approximately 200 companies\(^2\) in the U.S. midstream sector and over half of these were MLPs, according to Capital IQ.

However, the combination of under-investment, disaggregation and a move towards entities that were intended to focus on harvesting the cash flow of mature assets meant that many participants were not equipped to capitalize on the investment opportunities created by the shale revolution. Many companies were small and unable to fund new capital investment. Other participants lacked the internal capabilities, such as business development, risk management, and project management, necessary to carry-out new strategies or projects.

THE MIDSTREAM SECTOR RESPONDED WITH INCREASED INVESTMENT

The midstream industry has responded well to the initial challenge. The sector has been able to raise significant capital as a result of the significant growth opportunities and the investment advantages of the MLP structure. Between 2005 and 2014, the midstream MLP sector raised approximately $150 billion\(^3\) in capital including equity and debt financing. Much of this capital funded expansions of existing gathering

---

1 Oil & Natural Gas Transportation & Storage Infrastructure: Status, Trends, & Economic Benefits, IHS Global Inc., December 2013
2 WoodMackenzie
3 Jefferies presentation at IPAA Private Capital Conference 2014
systems and regional pipeline projects—in 2013 alone, the midstream sector added more than 13,000 miles of new oil and natural gas pipelines in the United States.

A portion of the capital raised was also used for acquisitions as companies realized that they lacked either the number of new projects necessary to maintain a consistent flow of drop-down activity or the internal capacity required to carry-out such projects. Deal counts have grown from 39 to 45 from 2011 to 2014 and the average deal size increased from $1.9 billion to $3.9 billion during the same period. Midstream merger and acquisition activity is expected to continue to grow, especially if the recent downturn in commodity prices extends through the remainder of the calendar year.

However, consolidation, in and of itself, does not represent an effective long-term business strategy. Similarly, growth through organic projects is more of a tactic than a strategy. In our perspective, the midstream sector participants to truly capitalize on what a recent Williams Companies investor presentation referred to as a “once-in-a-generation industry super-cycle” will define and implement robust strategies—a series of moves that provide them with a differentiated set of assets and capabilities that allow them to increase profits over the current trends.

**MLP response to the challenge:**

$150 billion Capital raised between 2005-2014

Investments with:

- 13,000 miles New U.S. pipeline added in 2013 alone
- 15% increase in number of Acquisitions 2011 to 2014

Source: Study by IHS for the American Petroleum Institute

Source: Capital IQ last 12 months revenue data

Midstream Industry Fragmentation
Cumulative Annual Revenue ($B) as of Dec. 2014

205 Midstream companies with reported revenue
115 out of 205 companies have revenues (last 12 months) below $100M
8 companies make up 65% of cumulative revenue
Energy Transfer is the top company with 24% of cumulative revenue between two MLPs (Energy Transfer Equity and Energy Transfer Partners)
DEFINING THE MIDSTREAM BUSINESS MODEL OF THE FUTURE

For a midstream company to define an effective strategy, it must first articulate its business model. Based on KPMG’s 9 Lever of Value Framework, a company can define its business model by considering three primary components.

First, what is our ambition in terms of both measurable, economic milestones as well as more qualitative descriptions of the type of company that we want to be. Second, what is our area of focus with respect to the types of plays that we will pursue, the exposures that we will accept, and the means by which we will make money. Finally, how do we intend to source its opportunities including the desired balance between organic and inorganic growth.

Based on our observations of primary sector participants, their public comments to the market, and their recent investments, we see at least four “pure-tone” business models that companies are pursuing as illustrated below.

We recognize that few companies, if any, are wholly consistent with such conceptual models and that there are potentially other effective business models available. However, based on our work across the midstream sector, we believe that companies need to be considering high level business model choices and their implications before thinking specifically about tactics. Such an approach helps to align an executive team around an intended path, provides boundary conditions for future choices (e.g., which markets do we want to expand in, what is the appropriate mix of M&A versus organic growth, etc.), and generally improves the effectiveness of the execution of the business plan. For example, MarkWest Energy leveraged its experience in the natural gas and NGL value chain to develop leading positions in the Marcellus and Utica basins. It then capitalized on the strong customer relationships it established in those regions to grow with their customers in other basins including the Permian basin.

Sponsored MLPs provide an interesting lens through which to consider participation choices. At one bookend, sponsored MLPs might define strategy largely in terms of the pace of parent company drop downs, which by definition are close to existing parent businesses. At the other bookend, sponsored MLPs might pursue growth agendas beyond their parent company geographies and businesses and thus face participation choices similar to that of independent MLPs. Tesoro Logistics’ recent purchase of QEP Field Services provides one example of a sponsored MLP expanding beyond its parents initial business while maintain a complementary strategic link (i.e., a focus on the parent company’s ‘strategic footprint’).
ALIGNING THE OPERATING MODEL

Decisions regarding business model have profound implications for an organization’s capability requirements. A company pursuing a business model focused on large organic projects, for example, must ensure that it is particularly effective—meaning better than its peers—at capital project management.

A company that accepts a greater degree of commodity price exposure in its contractual approach requires a different set of risk management capabilities than a competitor that focuses on volumetric or fee-based commercial arrangements.

Defining the necessary capabilities is the first step. Building those capabilities is the next and more challenging step, as a true capability is a complex combination of individual skillsets, underlying processes, and enabling technologies.

The process of identifying and building unique capabilities can be particularly challenging for sponsored MLPs. Inevitably, the discussion arises with respect to which particular services, be they front, mid, or back office, can and should be provided by the parent company and which should be developed within the MLP or out-sourced to a third party. In many cases, this debate is even more complex because the parent and sponsored-entity have not sufficiently discussed the degree to which, or pace at which, the sponsored entity will expand beyond the footprint of the parent company’s asset-base.

### Increasing degree of aggressive growth plans, and separation from sponsor

<table>
<thead>
<tr>
<th>Phillips 66 Partners</th>
<th>Shell Midstream MLP</th>
<th>Tesoro Logistics</th>
<th>EnLink Midstream LLP</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Background</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Phillips Partners has a crude gathering system ~120 mile refined products pipeline, 9 MMMBbl of terminal storage, and marine facilities</td>
<td>Shell Midstream has two crude pipeline systems and two refined product pipeline systems (Bengal and Colonial)</td>
<td>Tesoro Logistics has a crude oil gathering system in the Bakken, crude, marine, and rail terminalling and pipeline transportation on the West Coast</td>
<td>Devon and Crosstex spinoff EnLink Midstream EnLink has ~7,300 miles of pipelines, 12 processing plants, 6 fractionators, product storage</td>
</tr>
<tr>
<td><strong>Current Strategy</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fee-based contracts with minimum volume commitments and inflation escalators</td>
<td>Fee-based income with either take or pay contracts or life of lease contracts</td>
<td>Fee-based committed business</td>
<td>Dropout opportunities: E2, ENLC, Access pipeline, Victoria Express pipeline</td>
</tr>
<tr>
<td>Grow with sponsor dropdowns on Sand hills and Southern hills y-grade pipelines</td>
<td>Grow with sponsor dropdowns Strategic acquisitions from SPLC or third parties with long-term fee-based agreements, lock shippers on Mars in life of lease contracts, match pipeline capacity with storage, etc.</td>
<td>Grow with sponsor dropdowns, addition of the LA facility, marine terminals and access to future dropdown targets</td>
<td>Meet sponsor infrastructure needs at Eagle Ford, Permian, Oklahoma, New Basins</td>
</tr>
<tr>
<td>Optimize existing assets and organic growth expanding crude pipeline, terminal, and storage deliveries to Phillips’ refineries</td>
<td></td>
<td>Future growth opportunities to ship Bakken crude via rail and pipelines</td>
<td>Organic growth for Louisiana Liquids expansion and Texas Gas expansion</td>
</tr>
</tbody>
</table>

Source: Corporate Presentations, Corporate Website, SEC Reports
• Build strategic, enterprise-wide capabilities

• Manage and improve customer relationships
• Drive operational excellence
• Ensure seamless strategy implementation

• Enable and support operations
• Ensure appropriate compliance
• Establish risk policies
In light of the recent downturn in oil and gas prices, midstream companies must focus on operating efficiencies to hold costs in check. This is especially important given the general perception that the downward trend is a long term shift that will lead to structurally lower expansion in oil and gas production. Approaches to cost management range from short to long term, but they all share a focus on creating transparency into how spending supports organizational priorities (see chart above right for more detail on each of the categories).

Disaggregating costs into meaningful categories helps to identify where efforts should be directed to unlock value. The chart at the left displays the top three categories of an illustrative midstream company, which together account for almost 50% of major capital spend. This highlights the fact that a solid understanding of very few drivers can have disproportionate impacts on capital efficiency.

<table>
<thead>
<tr>
<th>Cost Transparency</th>
<th>Disaggregating the cost and revenue base into the major operational drivers is critical to effectively indentifying, tracking and sustaining revenue and cost opportunities and is an enabler to successful change programs.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cost Control</td>
<td>A rigorous cost management system forms the basis of a strong governance backbone that can improve both near term profitability as well as longer term cost competitiveness.</td>
</tr>
<tr>
<td>Operating Model</td>
<td>A well-described core operating model outlining how different areas of the business interact and where authority lies in the organization, speeds up decisions and leads to better choices.</td>
</tr>
<tr>
<td>Supply Chain &amp; Procurement</td>
<td>Efforts to approach supplier relationships more strategically through collaboration and transparency vs. arms length bidding can result in more optimum investment and operating costs, including reduced inventory and lower downtime.</td>
</tr>
<tr>
<td>Capital Efficiency</td>
<td>A detailed understanding of the project portfolio, and disciplined capital allocation only to core projects, yields the highest chance of delivering strong returns on capital. Relentless focus on large capital project management is essential to ensure projects come in on time and within budget.</td>
</tr>
<tr>
<td>M&amp;A</td>
<td>M&amp;A (and partnering) decisions can serve a wide variety of purposes; moving to “smart money” from “opportunistic” requires a clear value proposition/thesis, well articulated to the market and executed upon.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Category</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Drilling and Related Services</td>
<td>25%</td>
</tr>
<tr>
<td>Misc. Operating Equipment</td>
<td>12%</td>
</tr>
<tr>
<td>Misc. Oil and Gas Services</td>
<td>12%</td>
</tr>
<tr>
<td>Tubing</td>
<td>6%</td>
</tr>
<tr>
<td>Consulting</td>
<td>5%</td>
</tr>
<tr>
<td>Compressors</td>
<td>4%</td>
</tr>
<tr>
<td>Fuels and Lubricants</td>
<td>3%</td>
</tr>
<tr>
<td>Pumps, pipes, and casings</td>
<td>3%</td>
</tr>
<tr>
<td>Software and applications</td>
<td>2%</td>
</tr>
<tr>
<td>Chemicals and gases</td>
<td>2%</td>
</tr>
<tr>
<td>Maintenance services</td>
<td>2%</td>
</tr>
<tr>
<td>Other</td>
<td>21%</td>
</tr>
</tbody>
</table>
Regardless of the extent to which external market realities such as product pricing and regional flows may shift over time, a rigorous approach to managing costs will help “set the tone” for the organization and serve as preparation for success in a future that looks to be no less volatile than the past few years.
The supply shock from shale gas and unconventional “tight oil,” and the resulting need for midstream infrastructure placed the midstream industry at the center of a complex and rapidly shifting set of market forces. Recent OPEC policy shifts to maintain market share, coupled with this unconventional supply shock, have brought new complexities of lower and fluctuating commodity prices and expectations of a slower capacity build out. Consolidation, however, was already a trend and all the more likely in light of the additional pressures brought on by the industry slowdown. To capitalize on the opportunities facing the industry, companies need a dedicated focus on building advantaged capabilities, making the right business model choices and adaptations, and creating operating model flexibility to create sustainable, long-term competitive advantage. Extraordinary returns are the payoff for those companies who make the right moves.
KPMG’s Global Energy Institute

The KPMG Global Energy Institute (GEI) Launched in 2007, the GEI is a worldwide knowledge-sharing forum on current and emerging industry issues. This vehicle for accessing thought leadership, events, webcasts and podcasts about key industry topics and trends provides a way for you to share your perspectives on the challenges and opportunities facing the energy industry – arming you with new tools to better navigate the changes in this dynamic area.

Learn more at: [www.kpmgglobalenergyinstitute.com](http://www.kpmgglobalenergyinstitute.com)

How KPMG can help your business transform with focus and agility

Helping clients arrive at the optimum value from their business transformation journey begins with an in-depth understanding of the industry in which they work. With our breadth of industry experience, KPMG helps clients discover actionable insights across sectors and businesses of all sizes.

Strategy is the foundation of business transformation. Too often, the value from transformation goes unrealized due to disconnects between business model strategy, operating model execution, and the complex issues that companies face when implementing change. The accelerated pace of change means businesses need a focused and agile strategy to drive their transformational agenda.

Our value-based and metric-driven business transformation approach allows clients to develop and align their strategic and financial objectives to required business and operating models, organizational culture, measures and incentives, and the capability to change to connect vision to value.


About the authors

**Andy Steinhubl**

Andy Steinhubl is the strategy and transformation leader of KPMG’s Energy and Natural Resources Group with over 30 years of energy experience. Prior to joining KPMG, he worked most recently at Booz and Company—where he previously served as the North America Oil and Gas Practice leader and the Houston office managing partner. Andy has carried out multiple midstream projects, including merger integration, organization design, growth strategy, midstream-upstream de-integration and spin off, and private equity midstream investment due diligence. He has been quoted on several midstream topics, including in Midstream Business magazine.

**Chris Click**

Chris Click is a principal of KPMG’s Oil & Gas Strategy practice with over 15 years of oil and gas experience. Prior to joining KPMG, he worked for Booz and Company, where he led the upstream oil and gas team, and JPMorgan Chase & Company’s Global oil and gas Investment Banking Division. Chris has worked with oil and gas companies across the value chain to define and implement growth strategies that capitalize on the development of North America’s unconventional resources.

The information contained herein is of a general nature and is not intended to address the circumstances of any particular individual or entity. Although we endeavor to provide accurate and timely information, there can be no guarantee that such information is accurate as of the date it is received or that it will continue to be accurate in the future. No one should act on such information without appropriate professional advice after a thorough examination of the particular situation.
Contact Us

Andy Steinhubl
Energy and Natural Resources Strategy and Transformation Leader
Principal, Advisory
+1 713 319 2614
asteinhubl@kpmg.com

Chris Click
Oil & Gas Strategy and Transformation Leader
Principal, Advisory
+1 214 840 8061
cclick@kpmg.com